

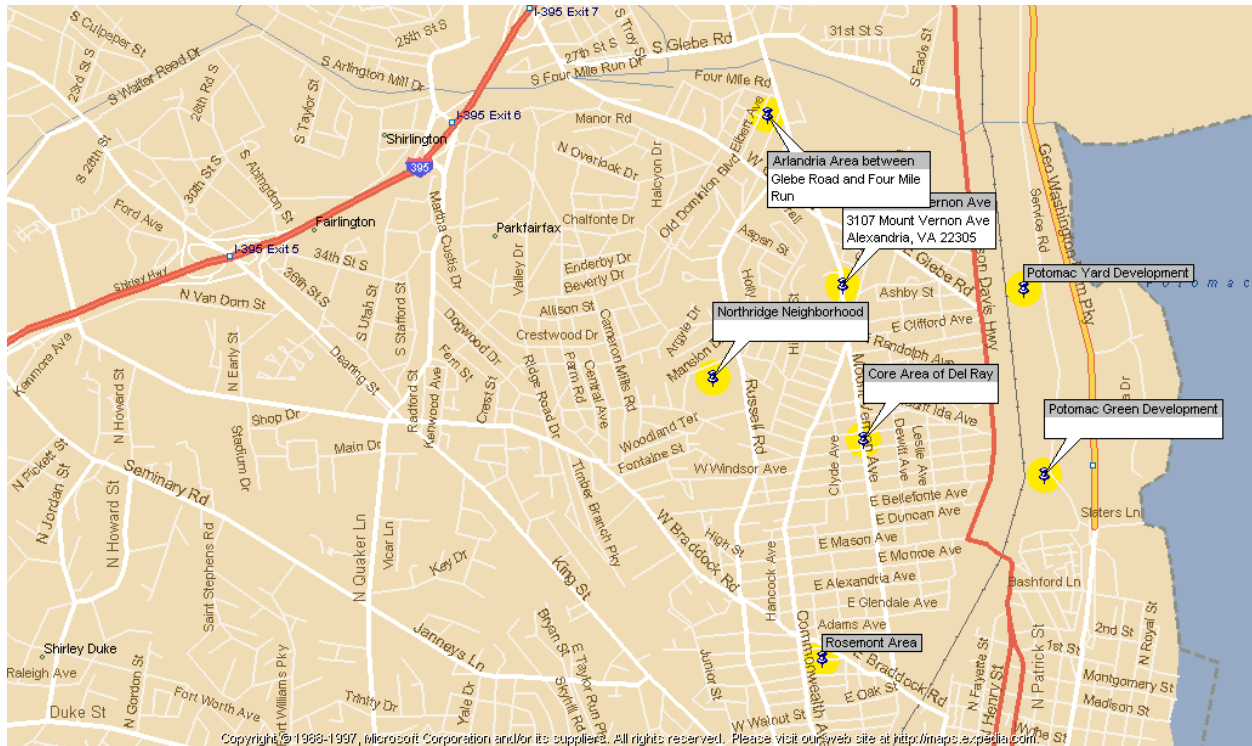
Introduction

This project is a study of a parcel of land located at 3107 and 3111 Mount Vernon Avenue Alexandria, Virginia located in the Northern Part of the Del Ray neighborhood. For simplicity we will refer to the property as "3107 Mount Vernon Avenue." The parcel is triangular shaped and at 39335 square feet is almost one acre in size. While the property size is attractive in terms of development potential, the triangular shape of the property presents challenges to the project that may affect the potential return on investment of this project. This report will examine the suitability of this parcel for the development of a Class A low rise apartment building three stories in height consisting of about 24 units. The issues affecting the feasibility that will be discussed here are as follows: Regional Analysis, Neighborhood Analysis, Site Analysis, Structure, Supply Analysis, Demand Analysis and a conclusion.

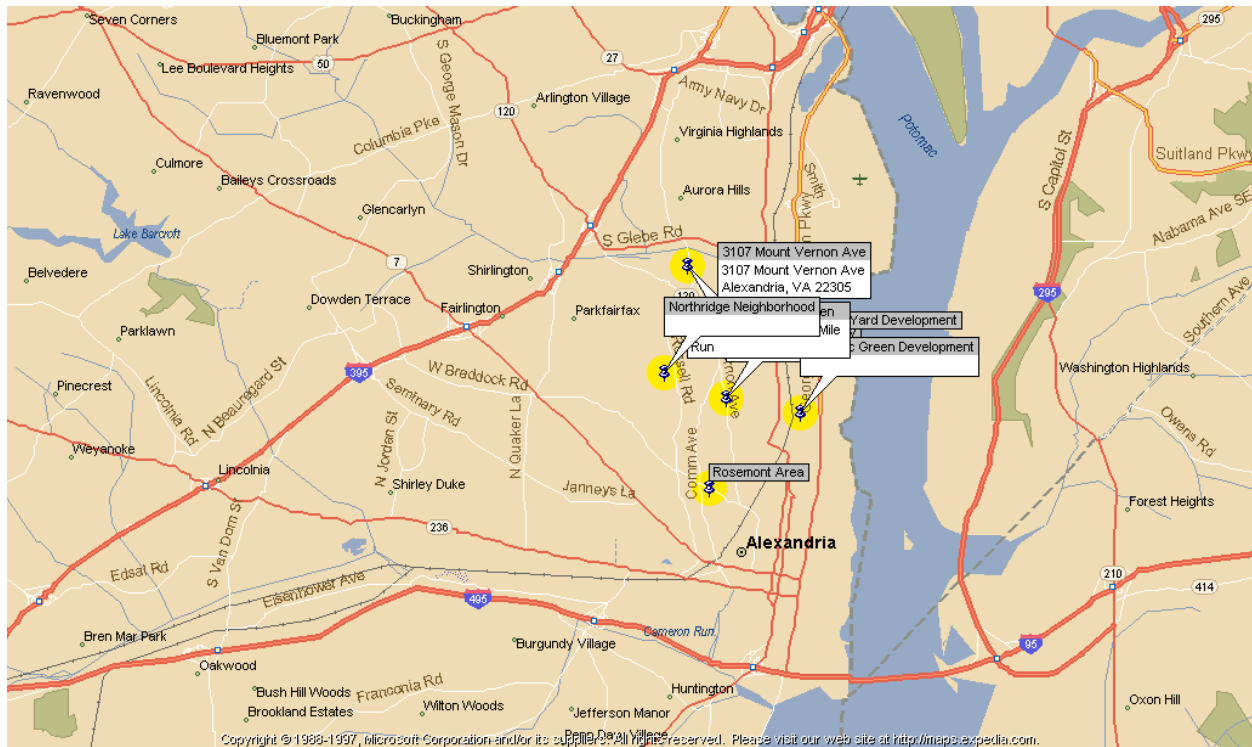
The Regional Analysis will address the strengths and weaknesses of the local economy and issues that may affect it's future. The Neighborhood Analysis will address the boundaries of the trade area and the character of the trade area. The Site Analysis will address the specifications of the project site, the surrounding uses, and travel and discuss the specific zoning of the site. The Structure analysis will examine building code issues, construction style and costs to complete the site improvements and structure. The Supply analysis will provide an overview of the metro apartment market, examine the apartment market in the specific market area, the existing competition and look at the types of amenities offered by various competitors. The demand analysis will look at employment, income, demographics and household characteristics, travel time and anticipated rental rates. The conclusion will summarize the findings of the previous sections, examine a proforma financial analysis and offer a recommendation of the project.

On the next page view two maps, one showing the neighborhood area and one showing the neighborhood and its proximity to Washington, DC.

Feasibility Study for Apartment Building 3107 Mount Vernon Avenue Alexandria, Virginia



Vicinity Map showing Del Ray and local area neighborhoods



General Area map indicating proximity to Washington DC, and surrounding highways

Regional Analysis

Looking at this property from a regional context portrays an optimistic picture. The Washington metropolitan area is driven in large part by the Federal Government which offers both direct employment as its primary industry and employment in the service sector which provides support to the federal government as its secondary industry. The local region also offers employment in the information technology and other high tech industries.

Trendlines, the publication produced by Transwestern Services and Delta Associates, portrays a cautiously optimistic view of the region in their publication for the beginning of the 2003 calendar year. They identify certain positive factors as this economy recovers from the recession of 2001. This time commercial real estate is a victim instead of the cause. Less than one quarter of one percent of all commercial mortgages are delinquent compared to the recession of the early 1990's where eight and one half percent of all commercial mortgages were delinquent. This is due in large part to the following reasons:

- Better underwriting
- Public market influence
- Better capital structures
- Better market conditions

These items are a result of a more disciplined real estate industry than that of the 1980's and early 1990's, both on a national and local level. However, their optimism for the Washington region is tempered by some facts that they point out, among them, the Federal Governments share of local employment is now 13% of total compared to 28% of the total employment area employment in the 1970's. Thus, the area is no longer "recession proof" as it used to be known but simply recession resistant. Further it's noted that the nation lost 200,000 jobs in 2002 and now job growth is slow because employers simply are using up excess capacity and contract laborers to supplement their needs.

Other optimistic outlooks are the low interest rates keeping up the demand for housing and consumer spending. No recent terrorist events and the eventual need for capital spending which corporations have been avoiding for some time.

Delta's view on the apartment markets is that conditions are beginning to improve and that apartment shopping traffic has returned to pre 9-11 levels. Certain submarkets, such as those with a large pipeline and are far from employment centers will take longer to rebound. Area wide vacancy rates will hover around five percent for the next three years and then will return to lower rates. Rents, however, will remain flat over the next 12 to 24 months and the stabilized vacancy remains at 3.5% at class A garden apartments in Northern Virginia

To conclude the summary of comments by "Trendlines", they point out that Northern Virginia is the loser in region's transportation. Washington is third on the list of most congested cities with 9.6 hours of daily congestion and Northern Virginias voted down a tax increase that would have

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boosted spending on transportation. This issue, discussed later, will actually help the case for the close in Alexandria location of the project.

Government spending will fuel the economy in this region for some time to come. It will provide primary and secondary employment and attract people to the region and keep demand for housing strong. This is further enhanced by the rebound in the Tech and Hospitality industry and the emerging Biotech industry in suburban Maryland.

There are drawbacks to the regional outlook for this area. The biggest drawback is that the strength of the real estate market has given landowners an optimistic opinion of their land values. Another drawback is that the economic center of the region has been gradually moving to the west of Washington for some years and appears to keep doing so. This fact should not be considered a large detriment to development as workers in the Alexandria area can commute towards the west of the region without too much difficulty. What this movement may do is spawn vibrant community areas that compete on a whole with this local regional area. That would take years of evolution and construction and development standards of today do not lend themselves to creating entire communities of this character. We may see one or two neighboring urban type developments, but not on the scale of the entire Del Ray area.

While the war in Iraq is declared over, some fighting and casualties continue. The Washington region will certainly benefit from the increased attention to Homeland Security and the war on Terror. Barring any extreme events, the regional outlook for the Alexandria area should be very solid for years to come.

Neighborhood Analysis

The primary market area is the Northern part of the Del Ray neighborhood bounded by West Glebe Road on the North, Route One to the East, Monroe Avenue to the South and Commonwealth Avenue to the West. This area contains part of the 22301 and 22302 zip codes and the property is located in the 515102012.02 census tract. This market area is bordered by the Arlandria neighborhood to the North, the Route One corridor and Potomac Yards to the east, lower Del Ray and Rosemont to the South and to the West by Northridge, an established residential neighborhood of single family homes that is not undergoing any major changes at this time.

Arlandria consists primarily of apartment buildings and retail establishments with small mix of townhouses, duplexes, and a few single family homes. This area is located in the 51510213 census tract. Arlandria is delimited by four mile run to the North, West Glebe Road to the West and South and Route One to the East.

On the south side of the primary market area is the lower part of Del Ray and The Rosemont area. The area of Del Ray and Rosemont is separated from Old Town Alexandria by the Metro rail and CSX railroad tracks which create a definite physical border. Rosemont is primarily a residential area consisting of older single family homes, townhouses and apartments and have virtually no retail establishments. The area of Del Ray below Monroe Avenue is similar to Rosemont in character with a mix of single family homes, townhouses and apartments, it does however, have some retail establishments. The difference between lower Del Ray and Rosemont is that in Del Ray the land is less hilly, the lots are smaller and the houses are not quite as big.

The Route One corridor is undergoing a remarkable transformation that is beginning to have a positive effect on the Del Ray and Arlandria neighborhood. It began when CSX abandoned the rail yard activities and commenced planning the Potomac Yard and Potomac Greens developments. As an interim measure they constructed a retail space along Route One that has become largely successful. This in turn, was the catalyst for interest in redeveloping properties along Route One. Now instead of warehouse and industrial type business such as auto repair and glass companies, retail and residential development are being created. This creates a less harsh and more pedestrian friendly border to the Del Ray neighborhoods bringing with it a twenty four hour area of activity as opposed to area that was vacant at night.

When the Potomac Yard and Potomac Green developments are completed, it will provide continuous development from Del Ray to the North Old town area. There will still be the physical separation of the railroad track and the metro rail line but the emotional separation will be far less. The first phase of the Potomac Yard development is going to be luxury town homes, plans for luxury apartments and neighborhood retail development are included but have not commenced at this time.

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A the City of Alexandria Planning and Zoning department with a consortium of consultants has come together to establish an improvement plan for Del Ray and have come up with what is known as the “Mount Vernon Avenue Business Area Plan.” This idea is being put forth in large part by the City of Alexandria and the Del Ray Civic Association. They have contracted with several consulting groups such as EDAW, Robert Charles Lesser and Company and the Odermatt Group and the process which began last year is supposed to take about eight months to develop a final plan for certain areas of Del Ray which include Mount Vernon Avenue and Monroe Street towards Route One.

While our proposed site does not fall into the historic core area of Del Ray, it is certainly within the targeted Mount Vernon Avenue area. The plan is focusing on themes which include developing the historic core area, developing the Monroe Avenue Gateway, and targets of opportunity within the area. Below is a synopsis of these plans:

Mount Vernon Avenue Business Area Plan-Synopsis

Maintaining current strengths of the neighborhood

Generally

- Small town “Main Street” look and feel
- Eclectic character and age
- Sense of history/historic district/place
- Mix of Uses
- Racial, gender, and business diversity

Commercial

- Local, unique, “ma and pa” shops
- Social, gathering places (Farmer’s Market, Art on the Avenue Festival, coffee shops)
- Live/work

Residential

- Affordable neighborhood
- Available transit
- Housing on the Avenue
- Automobile
- Singles, young families, and children
- Landscape quality –
- Strengths continued
- large open spaces
- Walkable, pedestrian friendly
- Perception of safety
- Accessible

Improving the streetscape with facade improvements

- Inadequate streetscape amenities
- Utilities should be buried underground
- Street lights, furnishings, signage, etc.
- Many storefronts in need of façade improvements

Creating a regional draw

- Existing zoning limits development opportunities on certain sites
- Land use conflicts require buffering
- Inadequate parking limited to isolated spots
- Small parcel sizes limit development opportunity
- City should facilitate land assembly

Analyzing and providing centralized parking

- Heavy evening traffic detracts from “
- Main Street” qualities
- Limited parcel sizes

This initiative, primarily in the heart of Del Ray, when coupled with the exciting developments in the surrounding area will certainly create a positive influence on the desirability of the project site as a residential location. The next logical step after discussing the neighborhood will be to examine the project site.

Site Analysis

The site is located at the northern end of the Del Ray neighbor directly on Mount Vernon Avenue. The site is a triangular parcel of land 39335 square feet in size located at 3107 and 3111 Mount Vernon Avenue (Please note, while the site is actually two addressed the first address has been used for simplicity.) The site is bounded by Mount Vernon Avenue to the West, an existing office Park to the North and East and a taxi stand to the south.

Mount Vernon Avenue is a secondary road with a double yellow line and speed limit of 25 miles per hour. There is ample bus service and an abundance of retail and service establishments located nearby. It is important to note that while this property is located in the Del Ray section of Alexandria, it is not located in the heart of down town Del Ray. It is located about two blocks from West Glebe Road, the beginning of Arlandria which is significantly different from Del Ray in terms of Demographics. These differences will addressed later in the study of demand.

Directly across Mount Vernon Avenue to the West is the Calvert Apartments, a complex of about 360 units. Currently this area does not have an active restaurant strip or evening night life except for two establishments located on the ground floor of the Calvert complex. This location is convenient to bus lines; it is not within walking distance of a metro stop. The closest metro stop would be the Braddock Road metro station about two miles away, which is too far to walk.

The site will have straightforward ingress and egress to and from Mount Vernon Avenue. There is sanitary sewer in Mount Vernon Avenue, as well as water and gas service. Telephone and Electric will be fed from overhead. The site sits above the office complex located directly behind it, so no complex sheeting or shoring should be required to complete the garage excavation.

The following page contains photographs of the site starting with the Calvert Apartments directly across the street and moving counter clockwise to show the surrounding areas.

As these pictures indicate, the area has matured with a mix of uses, from the high rise multifamily office building across the street to the low rise brick office complex to the north and east side. On Mount Vernon Avenue further to the North there are townhouses that have been built within the last ten years. This site is certainly suitable for providing a residential apartment complex.

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View looking at site from across street



View looking at adjacent business



View from site looking South West



View from site looking West



View from Site looking South East



View from Site looking South

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View from Site looking North East



View from site looking east



View from Site looking North West



View from Site looking north

Miscellaneous Nearby Neighboring Residences



Zoning Analysis

The site is currently vacant and zoned “CL”. Under this current zoning an apartment building is permissible by right. The maximum floor area ratio is .75 and this will permit a structure up to 29501 feet in size.

Based upon a review of the City of Alexandria Zoning Ordinance the site can yield 24 units. This result is the product of two tests, minimum lot area per dwelling unit and maximum units per acre. Additionally, the FAR of .75 limits the structure size to about 29,000 square feet. Dividing the total structure size by the number of units allows for an average size of 1229 square feet per unit; however our final analysis may yield a building of a smaller size.

In theory there is enough square footage to allow for a three story structure of approximately 9,833 square feet and approximately forty parking spaces assuming that each parking space will require between six and seven hundred square feet of land.

The building height is restricted by code to thirty five feet, however, a building height of forty five feet is allowable if a special use permit is applied for and approved. This may be possible and opens the development process to consider external input from the public. Minimum rear yard set back is limited to the greater of eight feet or the building height.

However, the triangular nature of the site makes the parking situation impracticable. Other contributing factors to this problem are that the zoning ordinance requires certain front, side and rear setbacks, in this case approximately 20 feet. On the South side this takes up almost four thousand square feet of land. See appendix __ for the preliminary attempts at location of parking spaces and the footprint of the building. Therefore, we will proceed with the assumption that underground parking will be necessary to satisfy the city of Alexandria zoning compliances and maximize the allowable density of the site.

On the following page is a table with a summary of the zoning constraints.

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**3107 Mount Vernon Avenue
Zoning Analysis**

Zoning	CL		
Multifamily		permitted by right	
Property size	0.903	acres	
	39335	square feet	
Zoning Constraints			
Minimum lot area per dwelling unit	1600	sq feet per unit	
Units allowed	24.58	units	
Maximum dwelling units per acre	27.00	units per acre	
Units allowed	24.38	units	
Maximum Floor Area Ratio	0.75		
Structure Size	29501.25	square feet	
Total Units-minimum from above	24.00	each	
Average unit size	1229.2	square feet per unit	
Maximum Building Height			
By right	35	feet	
Special Use Permit	45	feet	
Minimum lot frontage	50	feet	
minimum front yard set back-residential	20	feet	
minimum side yard set back	16	feet or	
(which ever is greater)	1/2	building height	
Minimum rear yard set back-residential	8	feet or	
(which ever is greater)	1	building height	
Parking			
One bedroom unit	1.3	spaces per unit	
Two bedroom unit	1.75	spaces per unit	
Three bedroom and larger	2.2	spaces per unit	
Estimated Number of Units			
One bedroom unit	8	each	10.4
Two bedroom unit	12	each	21
Three bedroom and larger	4	each	8.8
Total parking spaces required			40.2

Structure

Code Analysis

This project is proposing the use of wood as the main structural element for building support above the ground level which is how many low rise multiple family projects are built in this area. This type of structure is classified as a type 5 structure in the BOCA building code. A review of table 503 will indicate that a residential multi-family structure, noted as R-2, is limited to three stories, forty feet in height and is limited to 10,200 square feet of floor area per floor with the structural elements are protected from fire. If the elements are not protected from fire however the allowable square footage per floor is reduced to 4800 square feet per floor level. This can be reduced with the use of a fire sprinkler system. At this conceptual stage we will use the approach that the wood has protection from fire and thus we will have 10200 square feet per floor. The proposed plan of three floors total and 29500 square feet will satisfy the BOCA code requirements.

Structure

The most efficient structure from a cost standpoint would be a square building three stories tall. This would limit the amount of exterior wall and roof space relative to rentable floor area provided. However, the triangular shape of the site as well as the zoning constraints the structure will have to be more complicated to achieve the maximum permissible square footage allowed. The following sketch shows, conceptually, an outline of the shape of the structure that will fit within the required property line setbacks. This will leave us with a structure that appears to be two approximately square units in shape. One unit is about forty by forty two feet and the other structure is about fifty three by seventy five feet. This will be the outline of the building for the first two floors. A third and fourth floor will be required to provide the square footage needed to make up twenty four apartment units. The zoning ordinance requires the rear property line setback to be the greater of eight feet or the building height, whichever is greater. The sketch shows where the thirty and forty foot property line set backs are and thus the third and fourth floor will have to be reduced in area to comply with these requirements.

Because of the number of required parking spaces a parking garage will need to be located under the larger base unit and provide about twenty three covered parking spaces

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Cost Summary

The total cost of the project is broken down into seven categories.

- Engineering and Design
- Permits and Fees
- General Conditions
- Building Construction
- Parking Garage Structure
- Land
- Interest Expense

Cost Code	Description	Total
01107	Engineering and Design	\$ 100,000.00
01310	Permits and Fees	\$ 35,947.00
01500	General Conditions	\$77,184.00
02000	Site Work-in Building Construction	\$ -
04000	Building Construction	\$1,879,391.33
03000	Parking Garage Structure	\$ 446,886.72
-----	Land	\$ 720,000.00
-----	Interest Expense	\$ 200,000.00
	Total Construction Costs	\$3,459,409.06
	Cost per Square Foot	\$ 117.27
	Total Units	24.00
	Cost per Unit	\$ 144,142.04

The costs categories are discussed below:

Engineering and Design

This cost amount should cover the cost of the architectural, structural, mechanical, electrical and fire protection design in addition to any specialize costs such as landscape architecture. The cost of \$100,000 shown on the costs summary sheet is a budget amount that has been derived from examining design costs on other projects similar in nature.

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Permits and Fees

This covers the costs of Chesapeake Bay environmental fees, Site plan review, sewer and water tap fees. There should be no fees for the telephone, gas and electric company.

Fees	
Item	Cost
Chesapeake Bay/Environmental Fee	\$ 5,000.00
Site Plan	\$ 2,000.00
Building Plan Review and Inspection	\$ 8,700.00
Sewer Availability Fee	\$ 5,247.00
Water Tap Fees	\$ 15,000.00
Telephone Company Fee	\$ -
Power Company Fee	\$ -
Gas Company Fee	\$ -
Total Permits and Fees	\$ 35,947.00

General Conditions

This is the “soft” costs associated with running a construction site. These items are for costs that are not associated with the actual construction work but the management of the project such as supervision, tools, temporary power, office trailers, temporary power, and temporary protection of items. Below is a list of general conditions for this project

3107 Mount Vernon Avenue General Conditions							
Description	Quan.	Unit	Material	Labor	Sub.	Total	Scheduled Value
Supervision	25.714	1200		\$30,857.14		\$30,857.00	\$43,447.00
Dumpsters/Misc Hauling	6	500	\$3,000.00			\$3,000.00	\$3,449.00
OFFICE AND TRAILERS	6 mos		\$1,800.00			\$1,800.00	\$2,069.00
Temporary Electric	ls		\$1,200.00			\$1,200.00	\$1,379.00
Temporary Water	ls		\$1,000.00			\$1,000.00	\$1,150.00
Temporary Phone	ls		\$900.00			\$900.00	\$1,035.00
TEMP. TOILET	6 mos		\$1,500.00			\$1,500.00	\$1,724.00
UNLOAD, STORE & PROTECT			\$2,000.00			\$2,000.00	\$2,299.00
Office Supplies			\$1,000.00			\$1,000.00	\$1,150.00
Layout and Equipment			\$500.00	\$5,000.00		\$5,500.00	\$7,615.00
CLEAN-UP			\$150.00	\$3,000.00		\$3,150.00	\$4,396.00
Dewatering equipment			\$1,500.00			\$1,500.00	\$1,724.00
Misc equipment rental			\$5,000.00			\$5,000.00	\$5,748.00
Summary			\$19,550.00	\$38,857.14	\$0.00	\$58,407.00	\$77,185.00
Sales Tax	4.5%		\$879.75			\$880.00	
Labor Burden @	28.0%			\$10,880.00		\$10,880.00	
						\$70,167.00	
Markup	10.0%					\$7,016.70	
Total General Conditions						\$77,183.70	

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Construction Costs

Because this structure is not yet defined exactly, a conceptual estimating is the basis for this cost summary. Conceptual estimating begins with making assumptions that approximate a finished product in quality and quantity without actually having the defined layout of a finish product. For example twenty four apartments will have twenty four front doors and twenty four kitchen sinks. The same logic is applied to other variables such as multiplying the total number of bathrooms by the cost of one toilet per bathroom or one sink per bathroom. Once these quantities are derived, then the method used to compile a construction estimate for this apartment structure is a combination of unit costs for some items and crew hour estimates for other items. Unit costs work well for such items as windows or plumbing fixtures which do not vary in cost in different applications. Crew hour estimates are used in calculating costs which are unique to the project such as the amount of supervision or the quantity of excavation in such a relatively confined space.

3107-3111 Mount Vernon Avenue Building Costs					
Description	Quantity		Unit Cost		Total Cost
Site Demolition	10000	s.f.	\$ 0.50	p.s.f.	\$ 5,000.00
Electrical Ductbank	200	l.f.	\$ 50.00	p.l.f.	\$ 10,000.00
Sanitary Sewer Tie in	100	l.f.	\$ 50.00	p.l.f.	\$ 5,000.00
Storm Drainage (in garage estimate)	50	l.f.	\$ -	p.l.f.	\$ -
Parking Lot	10000	s.f.	\$ 3.33	p.s.f.	\$ 33,333.33
Patch Roadway cuts	500	s.f.	\$ 10.00	p.s.f.	\$ 5,000.00
Repair Curb and Gutter	250	l.f.	\$ 30.00	p.l.f.	\$ 7,500.00
Landscaping	1	budget	\$15,000.00	each	\$ 15,000.00
Site Lighting	6	poles	\$ 1,800.00	each	\$ 10,800.00
Site Concrete	2000	s.f.	\$ 4.00		\$ 8,000.00
Building Concrete-in garage	9833	s.f.	\$ -		\$ -
Masonry Walls	1	budget	\$10,000.00		\$ 10,000.00
Metals	1	budget	\$ 5,000.00		\$ 5,000.00
Floor joists	20000		\$ 2.50		\$ 50,000.00
Wood subfloor	20000		\$ 1.50		\$ 30,000.00
Floor ceiling fire barrier	20000		\$ 2.00		\$ 40,000.00
Wood walls	38616		\$ 2.00		\$ 77,232.00
Roofing framing and Plywood	9833		\$ 10.00		\$ 98,330.00
Wood Blocking	68		\$ 400.00		\$ 27,200.00
Wood Trim	24		\$ 1,600.00		\$ 38,400.00
Kitchen cabinets	24		\$ 4,000.00		\$ 96,000.00
Bathroom Cabinets	44		\$ 800.00		\$ 35,200.00
Building Insulation	14616		\$ 2.00		\$ 29,232.00
Building Vapor Barrier	14616		\$ 1.00		\$ 14,616.00
Roofing, including insulation	9833		\$ 10.00		\$ 98,330.00
Miscellaneous Flashing and caulk	144		\$ 10.00		\$ 1,440.00
Building entry doors	2		\$ 2,000.00		\$ 4,000.00
Apartment entry doors	24		\$ 500.00		\$ 12,000.00
Apartment interior doors	208		\$ 175.00		\$ 36,400.00
Service Doors	2		\$ 500.00		\$ 1,000.00
Windows	144		\$ 650.00		\$ 93,600.00
Mirrors	44		\$ 75.00		\$ 3,300.00
Drywall	92616		\$ 1.25		\$ 115,770.00
Painting	92616		\$ 0.50		\$ 46,308.00
Flooring	30000		\$ 3.00		\$ 90,000.00
Ceramic Tile	44		\$ 1,500.00		\$ 66,000.00
Air conditioning	24		\$ 5,000.00		\$ 120,000.00
Plumbing	68		\$ 3,000.00		\$ 204,000.00
Kitchen fixtures	24		\$ 400.00		\$ 9,600.00
Bathroom fixtures	44		\$ 2,000.00		\$ 88,000.00
Electrical	30000		\$ 3.00		\$ 90,000.00
Light fixture allowance	24		\$ 3,000.00		\$ 72,000.00
Kitchen Appliances	24		\$ 2,000.00		\$ 48,000.00
Washers and Dryers	24		\$ 1,200.00		\$ 28,800.00
Total Costs	30000	s.f.	\$ 62.65	p.s.f.	\$1,879,391.33

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Below is a list of assumptions in completing this conceptual estimate:

- Exterior veneer is face brick or cementitious plank siding
- Roof is flat, rubber with rigid insulation
- Windows are prefabricated, vinyl clad double hung
- Doors are pre-hung,
- Plumbing fixtures are budgeted

Additionally we need to discuss the cost of fire separation for the project as Boca code requires a one hour separation between tenant spaces. This will require 5/8 inch thick fireproof drywall on two sides of metal studs for tenant separation walls. The cost requirement here is one of coordination rather than cost because this wall type is a small increase over standard wall framing types. Where the fire separation will increase cost is in the floor/ceiling assembly. This is considered tenant separation and must also have a one hour fire rating. With conventional drywall construction, a key component to reaching the one hour rating, drywall is applied to both sides of the framing member and in the case of the floor/ceiling it can feasibly be applied to both sides as the top side will be a floor surface.

Underwriters Laboratories provides many methods for a one hour fire separation, all of which have their own attributes and drawbacks. Rather than lock into one certain type of fire resistance at this conceptual stage, we will apply a cost of \$2.00 per square foot which should be a sufficient increase in cost to accommodate the design professional's choice of fire separation.

Parking Garage Construction

Because of the Alexandria City zoning requirements described above, About 36 parking spaces are required. The triangular nature of the property precludes the efficient layout of surface parking and underground parking must be provided in addition to surface parking. The construction costs for this structured parking are based upon a sample parking garage layout as shown in Appendix B. The specifics of the construction costs are addressed further as categorized:

Parking Garage Construction			
Excavation	See estimate	\$	129,958.44
Concrete	See estimate	\$	239,678.29
Insulation	5625 sq. ft.	\$	11,250.00
Sprinkler	5625 sq. ft.	\$	16,875.00
Striping	Budget	\$	750.00
Lighting and Power	5625 sq. ft.	\$	16,875.00
Roll up doors	2 each	\$	6,000.00
Ventilation	Lump sum	\$	5,000.00
Storm Drainage	Lump sum	\$	15,500.00
Contingency	Lump sum	\$	5,000.00
Total Garage Costs		\$	446,886.72

Parking Garage Excavation:

The excavation cost is based upon the outline sketch discussed above. Because of the nature of the site, almost all of the earth excavated will have to be hauled and disposed of or sold to

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another contractor. The sale of excavated material is not a certainty, so the costs are calculated on having to haul the soil to a landfill and pay for the disposal costs.

The outline of the garage is assumed at 85 feet by 85 feet thus providing an area of 5625 square feet. The depth of cut to make a parking garage with a depth of eight feet is nine feet.

Excavation Estimate									
	Quan	Lngh	Wdth	Dpth	Vol	C.Y.	Material	Labor	Total
Mobilization									
Silt fence	1	1000	1	1			\$ 1,500.00	\$ 1,500.00	\$ 3,000.00
Construction Entrance	1						\$ 500.00	\$ 500.00	\$ 1,000.00
Water pumping	1						\$ 1,500.00	\$ 1,500.00	\$ 3,000.00
Mass Excavation									
									\$ -
Strip Topsoil					9900	367	\$ 1,833.33		\$ 1,833.33
Mass Excavation	1	85	85	9	65025	2408	\$ 12,041.67		\$ 12,041.67
Building Backfill	2	160	5	9	14400	533	\$ 5,333.33	\$ 2,666.67	\$ 8,000.00
Ramp excavation	1	40	20	6	4800	178	\$ 1,777.78	\$ 888.89	\$ 2,666.67
Ramp backfill	1	40	40	2	3200	119	\$ 1,185.19	\$ 592.59	\$ 1,777.78
Subgrade compaction					5625		\$ 1,406.25	\$ 1,406.25	\$ 2,812.50
Fine grade site					23875		\$ 3,581.25	\$ 3,581.25	\$ 7,162.50
Compact site					23875		\$ 3,581.25	\$ -	\$ 3,581.25
Footing Excavation						42	\$ 400.00	\$ 400.00	\$ 800.00
Haul excess						2876	\$ 74,782.74		\$ 74,782.74
Supervision								\$ 5,000.00	\$ 5,000.00
Site labor								\$ 2,500.00	\$ 2,500.00
Totals							\$109,422.79	\$20,535.65	\$129,958.44

Parking Garage Concrete:

The excavation depth will allow for an eight inch concrete slab and four inch sub-base. The garage will have concrete walls on the perimeter and a concrete ramp to the street level. The top of the garage will be supported concrete slab, estimated at four inches thick. This will serve as the base for the first floor level of the building. In the final design, an asphalt ramp may be proposed, however that would be a cost reduction and provide contingency for the inevitable cost overruns elsewhere. The concrete price is based upon historical unit costs plus one time crew costs such as the charge for pumping concrete, site supervision and layout. These costs are summarized as follows:

Concrete Estimate											
Conc.	Quan	L	W	D	Vol	C.Y.	Material	Labor	Total		
Spread Footing Conc.	25	3	3	1	225	8.33	\$ 833.33	\$ 333.33	\$ 1,166.67		
Wall Footing Concrete	4	75	3	1	900	33.3	\$ 3,333.33	\$ 666.67	\$ 4,000.00		
Slab on Grade Concrete	1	75	75	0.67	3768.75	140	\$ 13,958.33	\$ 2,791.67	\$ 16,750.00		
Column Concrete	25	10	2	2	1000	37	\$ 3,703.70	\$ 2,222.22	\$ 5,925.93		
Wall Concrete	4	75	0.83	10	2490	92.2	\$ 9,222.22	\$ 3,688.89	\$ 12,911.11		
Supported Slab Concrete	1	75	75	0.5	2812.5	104	\$ 10,416.67	\$ 4,166.67	\$ 14,583.33		
Formwork	Area					415					
Slab on grade construction joints	4	75	0.67		201		\$ 301.50	\$ 402.00	\$ 703.50		
Wall form	8	75	10		6000		\$ 12,000.00	\$ 12,000.00	\$ 24,000.00		
Column Form	100	10	2		2000		\$ 4,000.00	\$ 4,000.00	\$ 8,000.00		

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Pilaster form	incl								\$ -
Column capital form	25	3	3		225		\$ 450.00	\$ 900.00	\$ 1,350.00
Supported Slab form	1	75	75		5625		\$ 28,125.00	\$ 45,000.00	\$ 73,125.00
Supported Slab edge form	4	75	0.5		150		\$ 225.00	\$ 300.00	\$ 525.00
Supported Slab construction joints	4	75	0.5		150		\$ 225.00	\$ 300.00	\$ 525.00
Sump Pit form	1						\$ 200.00	\$ 200.00	\$ 400.00
Miscellaneous									
Gravel	1	75	75	0.67	3768.75	140	\$ 8,375.00	\$ 2,093.75	\$ 10,468.75
Drain tile	4	80	1	1	320		\$ 640.00	\$ 640.00	\$ 1,280.00
Drain tile gravel	4	80	3	3	2880	107	\$ 6,400.00	\$ 1,600.00	\$ 8,000.00
Reinforcing	2				19250		\$ 19,250.00	\$ 19,250.00	\$ 38,500.00
Polyethylene	1	75	75	1	5625		\$ 562.00	\$ 562.00	\$ 1,124.00
Curing compound	1	75	75	1	5625		\$ 80.00	\$ 160.00	\$ 240.00
Layout	1							\$ 1,000.00	\$ 1,000.00
Mobilize	1							\$ 2,000.00	\$ 2,000.00
Clean up	1							\$ 1,000.00	\$ 1,000.00
Supervise	1							\$ 4,000.00	\$ 4,000.00
Concrete Pump	7						\$ 5,600.00		\$ 5,600.00
Tools	1						\$ 1,000.00		\$ 1,000.00
Expansion Joint					1000		\$ 500.00	\$ 500.00	\$ 1,000.00
Column Boxouts					25		\$ 250.00	\$ 250.00	\$ 500.00
Totals							\$129,651.09	\$110,027.19	\$239,678.29
Cubic Yard						415			
Cost per cubic yard									\$ 577.99

Also listed below the excavation and concrete are the balance of items that will most likely be required to properly complete the garage:

- Insulation-This is required to insulate the first floor living space from the garage area that will not be conditioned fully.
- Sprinkler-Local codes will require the garage to be sprinklered. This sprinkler system will have to be a dry type system to prevent water from freezing in the pipes.
- Striping- This is the cost of marking out parking spaces and travel lanes.
- Lighting and Power-This is a budge estimate of what it will cost to provide lighting for the garage as well as power for outlets and the roll up doors.
- Roll up doors-These are motorized doors for entering and exiting the parking garage structure.
- Ventilation-This is a budget to provide some kind of ventilation to minimize the build up of exhaust fumes from the automobiles in the garage.
- Storm Drainage-rainfall and soil drainage will have to be collected and distributed to the street or storm sewer system. Hopefully an ejection pump will not be required if the existing storm water drainage system is deep enough to accommodate drainage from the garage.
- Contingency-This has been included for such items as waterproofing and other incidental items not anticipated at this time.

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The total cost for this project amounts to \$3,459,409.00 which equates to about \$117.00 dollars per square foot or about \$144,000.00 per unit. As a comparison check, a calculation of costs based on information distributed in a previous class has been included. Using units from the handout given in that class by the Bozzutto Company, the costs are applied to this specific project yielding a square foot price of about \$89.00 dollars per square foot or about \$109,000.00 dollars per unit. I considered these units as a good check against my conceptual estimating because the lower costs of the comparison units involved significantly less excavation and site work and possibly some economies of scale.

Supply Analysis

People who seek housing in the Del Ray area have several options in the competing market area. They can choose from renting a bedroom in a single family home or an apartment with more than one bedroom, or they can rent a single bedroom apartment or efficiency apartment.

A physical inspection survey of the Del Ray and Rosemont area revealed the following list of major apartment projects.

Address or Name	Number of Units	Description
Commonwealth Avenue Area		
Rosemont		
16 to 20 Old, Stone buildings	16 to 20	Nice, Stone exterior, dated interiors
401 Commonwealth Avenue 16-20 Renovated brick	16 to 20	Nice, brick exterior, renovated units
Del Ray		
East Nelson and Commonwealth	16 units	2 brick buildings, dated
1502 and 1510 Commonwealth	24 units	2 brick buildings, dated
Monroe and Commonwealth	40 units	large, brick, nice but dated
Monroe and Commonwealth	32 units	brick, fair condition behind shops
Commonwealth Crossing	60 units	brick, fair condition, good presence
Caylor Gardens	120 units	Nice, located on side streets, landscaped
206 East Windsor	8 units	Fair condition, sidestreet location, brick
208 East Windsor	8 units	Fair condition, sidestreet location, brick
East Mason Arms	8 units	Fair condition, sidestreet location, brick
102, 104, 106 East Mason	12 units	Fair condition, sidestreet location, brick
East Bellefonte	4 units	Fair condition, sidestreet location, brick
Nearby		
Beverly Hills Court 302 West Glebe Road	16 units	Fair condition, dated, brick exterior
3310 Mount Vernon Avenue	6 units	Small brick structure
The Calvert	120 units	Fair condition has amenities, pool

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The Aspen	120 units	Fair condition has amenities, pool
2701, 2703, 2705 Mount Vernon Avenue	18 units	Dated, brick exterior
2401 Mount Vernon Avenue Apartments	6 units	retail and office upstairs apt. on 1st, fair cond

Carlene Bahler of Weichert realty searched the MRIS information database for current advertised rentals and they can be seen in the summary below:

Rental Comparables

Name	Rent per Month	Size	Rent per sf. Month	Rent per sf. Year	Bedrooms	Baths	Amenities
New rental units							
3700 Jefferson Davis Highway	1195	633	\$ 1.89	\$ 22.65	1	1	Pool, Balcony, Rec center
3700 Jefferson Davis Highway	1299	708	\$ 1.83	\$ 22.02	1	1	Pool, Balcony, Rec center
3700 Jefferson Davis Highway	1425	761	\$ 1.87	\$ 22.47	1	1	Pool, Balcony, Rec center
3700 Jefferson Davis Highway	1595	1096	\$ 1.46	\$ 17.46	2	2	Pool, Balcony, Rec center
3700 Jefferson Davis Highway	1660	1110	\$ 1.50	\$ 17.95	2	2	Pool, Balcony, Rec center
3700 Jefferson Davis Highway	1760	1235	\$ 1.43	\$ 17.10	2	2	Pool, Balcony, Rec center

Older rental units

The Calvert							
One Bedroom	913	627	1.5	18.00	1	1	
Deluxe One Bedroom	1151	828	1.4	14.44	1	1	
Deluxe Two Bedroom	1350	1160	1.17	14.04	2	2	
The Aspen							
One Bedroom One Bath	950	600	1.58	19	1	1	
Two Bedroom One Bath	1300	1080	1.2	14.44	2	1	
Two Bedroom Two Bath	1500	1100	1.36	16.36	2	2	
404 E. Monroe Avenue	850	600	\$ 1.42	\$ 17.00	1	1	
Auburn Village	850	600	\$ 1.42	\$ 17.00	1	1	
Auburn Village	900	700	\$ 1.29	\$ 15.43	1	1	
Auburn Village	900	700	\$ 1.29	\$ 15.43	1	1	
Auburn Village	1050	850	\$ 1.24	\$ 14.82	1	1	
309 E. Duncan Avenue	1395	800	\$ 1.74	\$ 20.93	2	1	

We can refer to this data to make assumptions about our projected rental income.

- New, single bedroom apartments range in size from about 600 square feet to 760 square feet and rent for about \$1.85 per square foot per month in rent. We will use \$1.80 per square foot per month because our unit sizes are a little larger
- New, two bedroom apartments range in size from about 1100 to 1230 square feet and rent for approximately \$1.45 per square foot per month in rent.

Demand Analysis

Looking at the local economic indicators for December 2003 issued by the Alexandria Economic Development Partnership will reveal a vacancy rate of 2.9% for apartment buildings in the city. To try and forecast what will the area be like in the years to come I obtained demographic and income and housing data for the census tract in which the project is located, 5151020120.

The vacancy for all housing units is projected to drop to .9% in 2008, five years from now but the average gross rent in the year 2000 is only \$839.00 per month. It is interesting to note that there are few high end rentals listed in the summary. A review of the demographic and income profile will show us that the number of household with income above \$100,000 dollars per year is projected to rise 288 to 627 by the year 2008. Taking into account inflation this is still a good increase for this census tract.

Due to the close proximity to Arlandria, census data is included to show the differences between the two adjacent census tracts. While Del Ray is occupied by Young, two earner families with children in houses and single adults in rental units, a different trend is occurring in Arlandria.

Look at the demographic data for census tract 51510201202 and see that the data will show the percent of population considering themselves to be Hispanic Origin has risen from 2.70 percent in 1970 to 62.30 percent in the year 2000. At the same time the component of population considering themselves as white has decreased from 82 percent to 26 percent. The percent of population considering themselves as black peaked at about 48 percent in 1980 and has been reduced to about 23 percent.

The average household has increased from 2.16 in 1980 to 3.02 in 2000. It can be concluded that the trend in Arlandria is for a steady increase in the number of Hispanic households. A drive down Mount Vernon Avenue from West Glebe Road to Four Mile Run at the Arlington County line will reveal merchants catering to the growing number of Hispanic families. This review of data, in my opinion, offers two things in the consideration of subject property. It removes the area of Alexandria and Arlandria that is North of West Glebe Road from being considered as competition and it also indicates a stabilization of the community located close to our subject property.

The purpose of the above discussions is to reinforce the fact that Del Ray will continue to thrive as an emerging neighborhood while, in my opinion, next door Arlandria will mature into a more stable Hispanic family oriented community.

Financials

Appendix A in the rear of this report has the following spreadsheets containing the financial analysis for the project:

- Rent Roll-This summarizes the pro-forma income of the property. The rental rates of \$1.80 per square foot and \$1.45 per square foot are applied to their respective unit types and the total rent is obtained. The gross income is linked to the cash flow statement described next.
- Cash Flow-This sheet is linked electronically to the rent roll and the other sheets to produce the actual ten year cash flow and reversion incomes. Reading down the page the expenses are deducted and the returns are calculated to Demonstrate the following:
 - NOI
 - Before Tax Cash Flow
 - After Tax Cash Flow
 - Sales Proceeds
 - Project IRR, before and after tax
 - Leveraged IRR, before and after tax
 - Leveraged IRR with the cost of equity deducted at present market rates
 - NPV-Calculated on a discount rate of 8%
- Assumptions-This shows various assumptions of interest rates and hurdle rates used to calculate the returns
- Loan Amortization-This shows loan amount, rate, amortization as well as a schedule of payoff
- Operating Expenses-These expenses are calculated using historical data as well as estimated costs for building operation

Conclusion

To summarize the findings of the report we first need to look at the projected returns for the project. Which are as follows:

Returns	Before Tax	After Tax
Return on Project	5.14%	3.54%
Return on Equity	21.93%	18.66%
Return on Equity less the cost of equity		15.01

The initial cap rate for this project is 8.37% which is below the target of 10% we set out to obtain in our assumptions. Although the initial cap rate does not meet our target cap rate, this project, in my opinion should proceed. The following paragraphs will illustrate quantitatively and anecdotally why this project should proceed.

An article in the January 12, 2004 edition of the Washington Post is titled "Region's Apartment Market Shows Some Improvement." Written by staff writer Dana Hedgepath, this article reports that national apartment builders are still very bullish on Northern Virginia. The region has soft spots, among them Rockville with a vacancy rate of about 30 percent, but the region has an overall vacancy of 3.2 percent. The article further states that 15 class A apartment buildings were sold in the Washington area in 2003 with an average per unit sale price of \$165,181 and overall prices ranging from \$114,981 in Manassas to \$212,281 in Alexandria. Our project, with a projected cost of \$144,142.04 per unit is well within the price reported price range of apartment buildings in the Washington region and well below that of prices trading in the Alexandria area.

The City of Alexandria has a tough development review process and active citizen involvement in their public hearings. This will affect our proposed project as well as any competing projects in the future. This will ensure active oversight of competing projects that may be proposed in the next few years in the area. Further the competition for land is pushing a trend for developers to deliver condominium units rather than apartment rental in this area as well as others. This will unfortunately for homebuyers make housing less affordable but will benefit apartment owners. Should the trend continue, I would expect the main competition directly across the street, to renovate and raise rents which would have a positive impact on this project's future viability.

The close proximity of many amenities the local residents have relief from weekend congestion that may be seen in the outer suburbs. The close nature of the community provides for a relatively easy commute to Washington, D.C. as well as the outer suburbs. Therefore I feel that this project should proceed forward.